**3GPP TSG- Meeting #**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
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|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

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| ***Title:***  |  |
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| ***Source to WG:*** |  |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** |  |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** |  |  | ***Release:*** |  |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
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| ***Reason for change:*** | SA5 expressed a concern in LS to RAN2 (R2-2400089/S5-237941) for a potential ambiguity with RAN2 spec TS 38.314 clause 4.2.1.5.2 referring to TS 28.552 clause 5.1.1.1.1 that pertains to a measurement for the average (arithmetic mean) time it takes for packet transmission over the air-interface in the downlink direction. To address the SA5’s concern, RAN2 has omitted the reference to TS 28.552 clause 5.1.1.1.1 in TS 38.314.However Samsung thinks that instead of using measurements from TS 38.314 in such a manner a more straightforward and robust approach would be to use an existing measurement from SA5 own spec i.e. TS 28.552 for the numerator calculation i.e. No of packets successfully received within a time frame. The numerator in other proposal is dependant on configuration of a single time constraint value in network. However if we use measurement of clause 5.1.1.1.2 in TS 28.552 then it gives individual delay of each and every packet ready for use because it configures different ranges of delays to get delays of all packets i.e. all different delay values are captured leaving no room for ambiguity and such measurements can be used to troubleshoot all delay related issues for the ongoing URLLC service.  |
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| ***Summary of change:*** | Reliability KPI in RAN with time constraint over downlink air-interface(Uu) is defined |
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| ***Consequences if not approved:*** | Reliability KPI based on time constraint in DL over Uu interface in a 5G network cannot be calculated for delay cricitcal URLLC services. URLLC service management will not be properly taking place. |
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| ***Clauses affected:*** | 6.8.1.X |
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|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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| **First Change** |

#### 6.8.1.X Reliability KPI in RAN with time constraint over Downlink air-interface(Uu)

a) RelPktsTCDL\_Uu

b) This KPI describes the packet transmission reliability considering a time constraint/delay threshold (as required for a service) in downlink over the Uu interface in RAN. It is the percentage of RLC SDU packets that are transmitted over the air interface in downlink and positively acknowledged within the required time constraint/delay threshold, out of the total RLC SDU packets transmitted over air interface in downlink. It is a percentage value (%). This KPI can optionally be split into KPIs per QoS level (mapped 5QI or QCI in NR option 3) and per S-NSSAI.

c) Below is the equation for Reliability KPI in RAN with time constraint or delay threshold (denoted as TC) in DL over Uu Interface.

 c.1) RelPktsTCDL\_Uu = [(DRB.AirIfDelayDist.Bin\_Filter)/(N(T,drbid) + Dloss(T,drbid))] × 100, where

 N(T,drbid) and Dloss(T,drbid) are as defined in Table 4.2.1.5.1-2 in TS 38.314 [12].

 DRB.AirIfDelayDist.Bin\_Filter is as defined in clause 5.1.1.1.2 in TS 28.552 [6].

 Optionally RelPktsTCDL\_Uu.QoS = [(DRB.AirIfDelayDist.Bin\_QoS)/(N(T,drbid).QoS + Dloss(T,drbid).QoS)] × 100, where QoS identifies the target QoS quality of service class.

 Optionally RelPktsTCDL\_Uu.SNSSAI = [(DRB.AirIfDelayDist.Bin\_SNSSAI)/(N(T,drbid).SNSSAI + Dloss(T,drbid).SNSSAI)] × 100, where SNSSAI identifies the S-NSSAI.

d) NRCellDU

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| **End of Changes** |